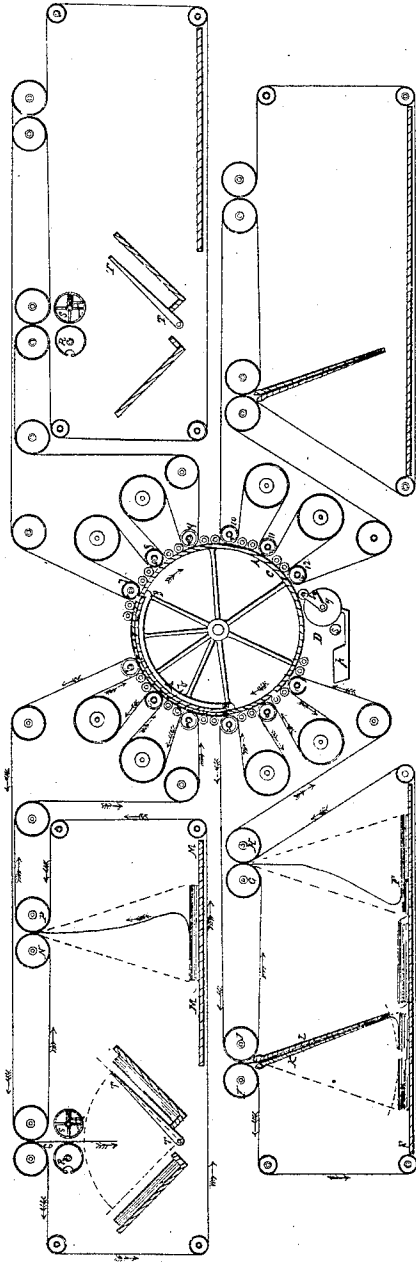
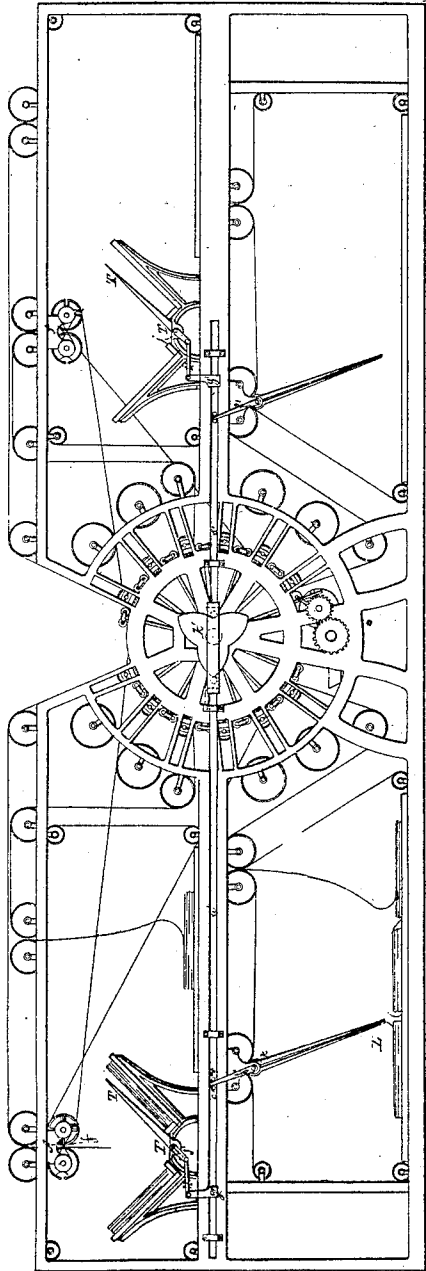


V. BEAUMONT.
PRINTING PRESS.

No. 9,987.

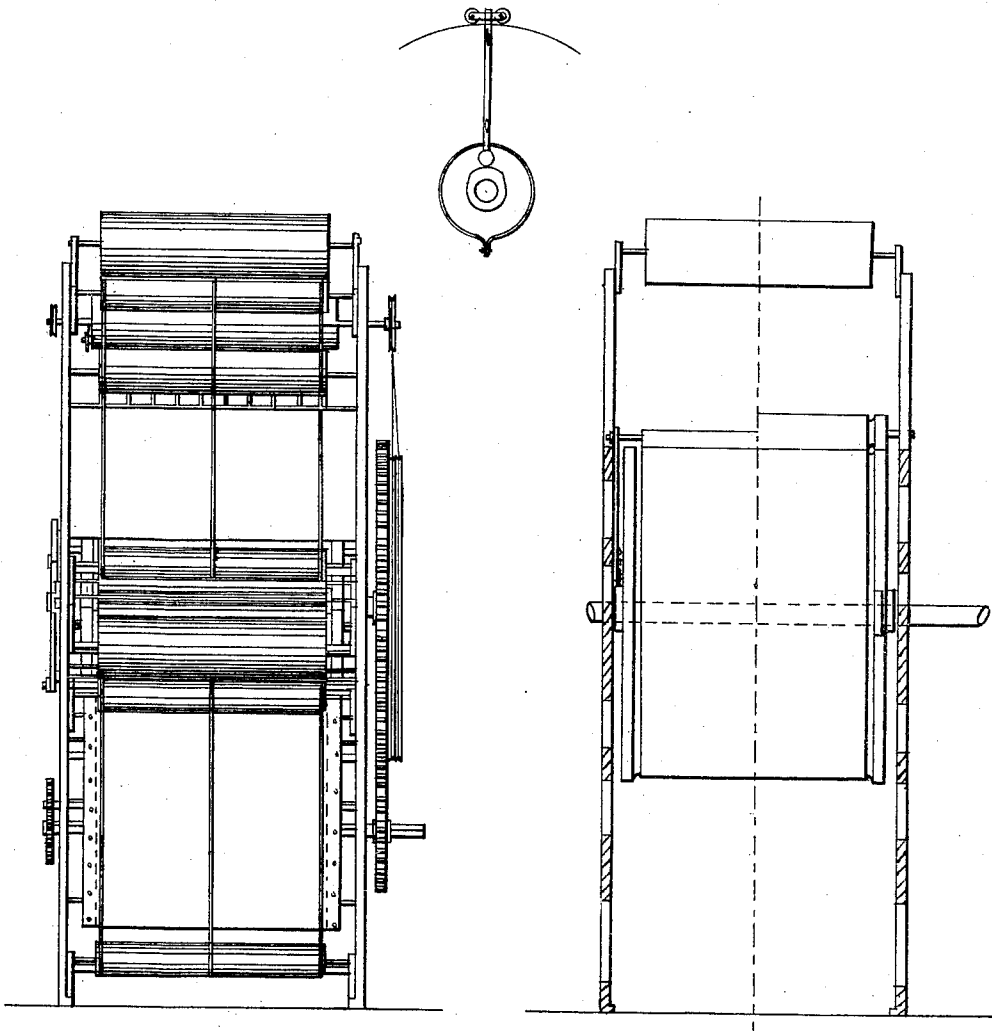
Patented Sept. 6, 1853.



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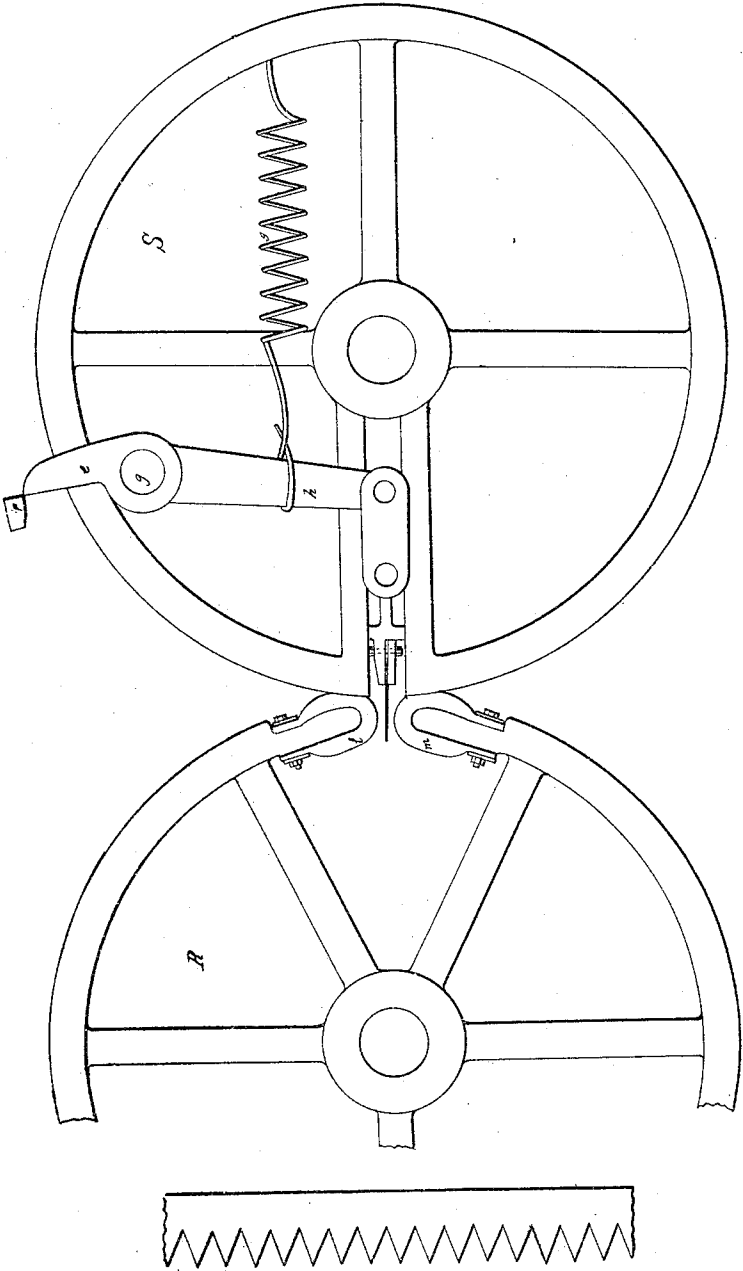
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No. 9,987.

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UNITED STATES PATENT OFFICE.

VICTOR BEAUMONT, OF NEW YORK, N. Y.

PRINTING-PRESS.

Specification of Letters Patent No. 9,987, dated September 6, 1853.

To all whom it may concern:

Be it known that I, VICTOR BEAUMONT, of New York, in the county of New York and State of New York, have invented a new and useful Improvement on Rotary Printing-Presses; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Plate No. 1, is a side view of the machine. Plate No. 2, a longitudinal section of the same. Plate No. 3, an end view and transverse section. Plate No. 4, a full size drawing of the paper cutting apparatus and knife.

My press consists of a printing cylinder A, A, on a part of the surface of which, from B to B', are fixed the forms of type, the remainder B C B' of the surface being used as a distributing table. Around this large cylinder are fixed twelve impression cylinders Nos. 1, 2, 3, 4, 5, 6 and . . . 11, 12 and between them are elastic inking rollers. Under the printing cylinder in D, is the ink fountain *p*, the rollers *q* and *r* to distribute ink on the distributing table, and the shaft *s*, by means of which the machine is made to revolve. The impression cylinders are made to follow the motion of the printing cylinder by their friction against it, at their ends. The cylinders R and S constitute a cutting apparatus, all the other cylinders or rollers are parts of an arrangement making the machine self-feeding.

A continuous sheet of paper being wetted and disposed in piles by folding the paper alternately left and right in the way represented in the drawings at F, (Plate 2,) is carried to the machine and placed on the table F. The end of the paper is then engaged between the rollers G and H, and the machine being put in motion, it is carried between endless tapes around the impression cylinders 1, 2, 3, it is printed by them, and comes out of the rollers I and J, and there it passes between the two parallel boards K and L, fixed on the axis O, and whose motion backward and forward fold again the paper in a pile as it was at first. These boards or plates are fastened together on their vertical sides. The pile is then carried and placed on the upper table in M, M, and there engaged between the rollers N and P, after having turned so as to print the other side of the paper under the impression

cylinders 4, 5 and 6. The paper comes out in Q and there passes between the two rollers R and S by which it is cut in sheets, that are piled left and right by the fly T, T. To operate thus, in the printing of a newspaper for example, all the forms of type are fixed together on the printing cylinder, *a* and *b* being for the one side, and *c* and *d* for the other side of the newspaper sheet. Thus on the same surface of the continuous sheet of paper are printed alternately one inside and one outside page of the newspaper; and when the continuous sheet has been reversed and carried to the upper table, then this order is changed and one outside and one inside page are alternately printed on the reverse surface of the continuous sheet. The operations described are repeated in a similar way on the other half of the machine.

As represented in the drawings, the types occupy one third of the surface of the printing cylinder, and three impression cylinders must be fed by the same continuous sheet of paper, consequently the plan requires four continuous sheets of paper to be used together, and we have to show that each sheet will be printed all over and that no part of it will receive more than one impression. If for example we consider one impression cylinder, say No. 1, the paper will pass between it and the printing cylinder, with just the velocity of a point in the circumference of either of them. After a revolution of the printing cylinder, a portion of the continuous sheet equal in length, to its circumference will have passed forward, and, as the type occupy one third of that circumference, one third of that portion of the continuous sheet of paper will be printed and two thirds will be white; these two thirds will be printed by the two other impression cylinders No. 2 and No. 3, and the continuous sheet will run out of them printed all over.

The length of paper between two of the impression cylinders, is equal to the length of the type, plus, the distance between these two cylinders. By this arrangement the impressions made by the three impression cylinders, are disposed in succession on the paper, without covering each other. If it was judged proper to print only one side of the newspaper at a time, the type should occupy only one sixth of the circumference, and six impression cylinders would be fed

by the same continuous sheet of paper. By such an arrangement the press would be much reduced in length.

The rollers R and S which form the cutting apparatus, are constructed so that their circumference will be exactly equal to the length of a newspaper sheet and their velocity at the circumference is just equal to that of the paper, so that when a length of paper equal to one printed sheet has come out, the knife has come again in the position indicated on plate No. 4, and again cuts the paper by the action of the cam *e*. This cam is acted upon by the pin *f*, fixed to the frame, it forces the axis *g*, to turn, and the lever *h* to push forward the knife through the paper. The knife is indented in the form of a saw with exceedingly acute teeth, as indicated on Plate 4. When the cam escapes, the knife is instantly brought back by the spring *j*. During the action of the knife the paper is kept at a proper tension to resist its pushing action, and force it to enter, by the elastic cushions *l* and *m*. On the shaft of one of these rollers R or S is a pulley which receives its motion by means of a rope from a pulley fixed on the printing cylinder shaft. The second roller S or R receives its motion from the first, the two being connected at their other end by a crossed rope passing on pulleys of equal diameter. These motions may be communicated by various arrangements of cogwheels and gearing apparatus.

The folder K L, the function of which has been already described, is composed of two flat boards or plates fastened together on each side at such a distance from each other that a sheet of paper may slide freely between them. They are suspended on the axis O, around which they have a pendulum motion. This motion is communicated to them by the printing cylinder shaft, on

which is fixed, outside of the frame of the machine a three-foil eccentric *k'* which for each revolution of the printing cylinder will push the flat bar *a' b'* (Plate No. 1), three times one way and three times the other; on this bar are the pins *c'* and *d'* by which the end of the lever *f'*, fixed on the axis O is forced to follow the motion. This lever gives the axis O and the folder attached to it the required alternate vibrating motion. On the same bar are the stands *g', g'* which by means of the connecting rods *h' h'* and levers *j' j'* give the fly T, T and the one on the other side of the machine, the same number of motions, three forward and three backward which are necessary in the present case to collect the six newspapers printed on each side of the machine each time the cylinder A A makes a revolution.

I do not claim a type cylinder or any particular mode of holding the type in place, or the using any portion of the periphery of the type cylinder for a distributing surface; but

What I do claim as my invention and desire to secure by Letters Patent, is:

1. The combination of two or more impression cylinders, with a type cylinder, so arranged as to print all over on one side a continuous sheet of paper, in the manner described.

2. The combination of the eccentric *k'* rod *a' b'* and the folder K L, so arranged as to lay the continuous sheet in piles after being printed on one side as described.

3. The combination of the indented knife with the roller R and S so arranged as to cut the sheet into proper length as printed.

V. BEAUMONT.

Witnesses:

G. VERJIANO,
M. DELLUE.